



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



HEALTHY AIR LIVING™

JUN 04 2013

Mr. Melinda Hicks
Kern Oil & Refining Co
7724 E Panama Lane
Bakersfield, CA 93307

**Re: Proposed ATC / Certificate of Conformity (Significant Mod)
District Facility # S-37
Project # 1130397**

Dear Mr. Hicks:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. You requested that Certificates of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The project authorizes a new LPG Recovery Unit and modifies Solvent Unit S-37-38.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authorities to Construct with Certificates of Conformity. Please submit your comments within the 30-day public comment period, as specified in the enclosed public notice. Prior to operating with modifications authorized by the Authorities to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

Enclosures

DW:RE/st

cc: Mike Tollstrup, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via email

Seyed Sadredin
Executive Director/Air Pollution Control Officer

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Bakersfield, CA 93308-9725
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Newspaper notice for publication in Bakersfield Californian and for posting on valleyair.org

**NOTICE OF PRELIMINARY DECISION
FOR THE ISSUANCE OF AUTHORITY TO CONSTRUCT AND
THE PROPOSED SIGNIFICANT MODIFICATION OF FEDERALLY
MANDATED OPERATING PERMIT**

NOTICE IS HEREBY GIVEN that the San Joaquin Valley Air Pollution Control District solicits public comment on the proposed significant modification of Kern Oil & Refining Co at 7724 E Panama Lane, Bakersfield, California. The project authorizes a new LPG Recovery Unit and modified Solvent Unit S-37-38.

The District's analysis of the legal and factual basis for this proposed action, project #1130397, is available for public inspection at http://www.valleyair.org/notices/public_notices_idx.htm and at any District office. There are no emission increases associated with this proposed action. This will be the public's only opportunity to comment on the specific conditions of the modification. If requested, the District will hold a public hearing regarding issuance of this modification. For additional information, please contact the District at (661) 392-5500. Written comments on the proposed initial permit must be submitted by July 8, 2013 to **DAVID WARNER, DIRECTOR OF PERMIT SERVICES, SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT, 34946 FLYOVER COURT, BAKERSFIELD, CA 93308.**

San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review
New 4 MMscf/day LPG Recovery Unit

Facility Name: Kern Oil & Refining Co Date: May 20, 2013
Mailing Address: 7724 E Panama Lane Engineer: Richard Edgehill
Bakersfield, CA 93307 Lead Engineer: Richard Karrs
Contact Person: Melinda Hicks and Joe Selgrath
Telephone: (661) 845-0761 (MH) (661) 377-0073 #12 (JS)
Fax: (661) 845-0330
E-Mail: mhicks@kernoil.com
Application #(s): S-37-38-10, '-149-0
Project #: 1130397
Deemed Complete: March 6, 2013

I. Proposal

Kern Oil & Refining Co (Kern) has requested Authorities to Construct (ATCs) for the installation of a new LPG recovery unit (S-37-149-0) for separation of pentanes and liquefied petroleum gas (LPG) from refinery sweet gas (RSG). The new equipment will consist of skid mounted gas compressors, membrane separation devices, solid phase gas dryers (molecular sieve), refrigeration, and a small permit exempt cooling tower. Solvent Unit S-37-38 will undergo equipment modifications which will include removal of deethanizer, depropanizer, and debutanizer fractionation columns and reflux drums for use in S-37-149-0. Installation of the new LPG recovery unit will result in an increase in fugitive emissions which will be mitigated by a decrease in fugitive emissions from S-37-38 resulting from equipment deletions and modifications.

The project also deletes Rule 4455 conditions (redundant) included on PTO S-37-38-9 as they are included on the facility wide permit S-37-0-0. This change is administrative with no NSR implications.

The applicant also requested the following changes:

S-37-38

1. Change permit name from "Solvent Unit" to "Splitter Unit." ATC conditions and equipment description changes were made.
2. In Condition 3 replace "platformer stabilizer off-gas" to "refinery fuel gas".

Heater shall be fired on purchased natural gas or ~~platformer stabilizer off-~~refinery fuel gas only. [District NSR Rule] Y

3. Condition #9 requires that the fuel gas supply line be equipped with a H2S continuous monitor/recorder and Condition 13 requires continuous monitoring and recording of fuel gas sulfur (as H2S) content which would not be possible without a continuous monitor and recorder. Therefore Condition 9 was deleted as it is redundant.

~~Refinery fuel gas supply line shall be equipped with continuous H2S monitor/recorder. [40-CFR 60.105a(4)]~~ Y

Fuel gas sulfur content (as H2S) shall not exceed 0.10 gr/ dscf (160 ppmv) over a three hour rolling average and shall be continuously monitored and recorded. [40 CFR 60, Subpart J, 60.104] Y

4. Condition 11 doesn't apply to this unit because is not capable of making solves (solvent unit products) with the change in equipment.

~~11. If solvent unit products are sold within Kern County, Kern Oil & Refining Company shall supply SJVUAPCD with list of current customers upon request. [District NSR Rule]~~ Y

5. Condition 6 and 17 are duplicates. Condition #17 was deleted.

The project is a Federal Major Modification requiring BACT and public notice. Offsets are not required.

Disposition of Outstanding ATCs

There are no outstanding ATCs for ATC S-37-38. PTO S-37-38-9 serves as the base document and is included in **Attachment I**.

Kern received their Title V Permit on December 17, 2002. The project is a Federal Major Modification and therefore it is classified as a Title V Significant Modification pursuant to Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Kern must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC(s) issued with this project.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)

S-37-38 Solvent Plant is not being modified as defined by 40 CFR Part 60, Subpart A, Section 14 i.e. NSPS consideration is not required.

S-37-148 LPG Recovery Unit

Subpart J Standards of Performance for Petroleum Refineries – **not applicable** - the new LPG Unit does not include a FCC catalyst regenerator, fuel gas combustion device, or Claus sulfur recovery plant

Subpart GGG –Standards of Performance for Equipment Leaks of VOC at Petroleum Refineries (and by reference Subpart VV Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry)

Subpart Ja – not applicable – the new LPG Unit and Solvent Plant are not part of the sulfur recovery plant

Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)
Rule 4102	Nuisance (12/17/92)
Rule 4301	Fuel Burning Equipment (12/17/92)
Rule 4305	Boilers, Steam Generators and Process Heaters – Phase II (8/21/03) – not applicable – S-37-38 process heater is rated < 5 MMBtu/hr
Rule 4306	Boilers, Steam Generators and Process Heaters – Phase III (3/17/05) – not applicable –S-37-38 process heater is rated < 5 MMBtu/hr
Rule 4307	Boilers, Steam Generators and Process Heaters – 2.0 MMBtu/hr to 5.0 MMBtu/hr
Rule 4320	Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr (10/16/08) – S-37-38 process heater is rated < 5 MMBtu/hr
Rule 4351	Boilers, Steam Generators and Process Heaters – Phase 1 (8/21/03)-- not applicable – S-37-38 process heater is rated < 5 MMBtu/hr
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)	
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines	

III. Project Location

The facility is located at 7724 E Panama Lane in Bakersfield, CA. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

Kern Oil and Refining Company operates a petroleum refining operation engaged in the production of petroleum distillates. Applicant is requesting authorization to install a new LPG Recovery Unit (ATC S-37-147-0) and to modify, delete, and reuse equipment from the existing Solvent Plant S-37-33.

Proposed Modifications

The LPG Recovery Unit (S-37-147) will separate LPG and pentanes from RSG. RSG (4 MMscf/day), containing approximately 19% methane and heavier hydrocarbons, will be increased in pressure from 75 psig to 350 psig using a 700 hp electric motor-driven

compressor(s) before entering solid phase gas dryers containing a molecular sieve absorbent, refrigeration, membrane separation and distillation operations. LPG and pentane products will be stored in existing spheres and pressurized bullets which are permit-exempt. Processed gas (mostly methane) will be returned to the refinery fuel gas system.

A Plot Plan and Process Flow Diagram are included in **Attachment II**.

V. Equipment Listing

Pre-Project Equipment Description:

S-37-38-9: SOLVENT UNIT INCLUDING: NAPHTHA FRACTIONATOR (V-1), LIGHT SOLVENT FRACTIONATOR (V-3), V M & P NAPHTHA FRACTIONATOR (V-5), MINERAL SPIRITS FRACTIONATOR (V-7), 4 REFLUX DRUMS (V-2, V-4, V-6 AND V-8) AND 3,750,000 BTU/HR GAS FIRED FIRE TUBE HEATER (H-1)

Proposed Modification:

S-37-38-10: MODIFICATION OF SOLVENT UNIT INCLUDING: NAPHTHA FRACTIONATOR (V-1), LIGHT SOLVENT FRACTIONATOR (V-3), V M & P NAPHTHA FRACTIONATOR (V-5), MINERAL SPIRITS FRACTIONATOR (V-7), 4 REFLUX DRUMS (V-2, V-4, V-6 AND V-8) AND 3,750,000 BTU/HR GAS FIRED FIRE TUBE HEATER (H-1): DELETE NAPHTHA FRACTIONATOR (V-1), LIGHT SOLVENT FRACTIONATOR (V-3), V M & P NAPHTHA FRACTIONATOR (V-5), MINERAL SPIRITS FRACTIONATOR, V-2, V-4, V-6 REFLUX DRUMS FOR REUSE IN LPG RECOVERY UNIT S-37-149-0, DELETE RULE 4455 CONDITIONS (INCLUDED ON '0-0 PERMIT), CHANGE PERMIT NAME FROM SOLVENT UNIT TO SPLITTER UNIT

Post Project Equipment Description:

S-37-38-10: SOLVENT UNIT INCLUDING: ~~NAPHTHA FRACTIONATOR (V-1), LIGHT SOLVENT FRACTIONATOR (V-3), V M & P NAPHTHA FRACTIONATOR (V-5), MINERAL SPIRITS FRACTIONATOR V-7 FRACTIONATOR, 1 REFLUX DRUM (V-2, V-4, V-6 AND V-8) AND 3,750,000 BTU/HR GAS FIRED FIRE TUBE HEATER (H-1)~~

S-37-149-0: 4 MMSCF/DAY LPG RECOVERY UNIT INCLUDING GAS COMPRESSION, MEMBRANE SEPARATION, REFRIGERATION, SOLID PHASE DRYING/ DEHYDRATION, AND FRACTIONATION

Charge compressor, 700 hp
Refrigeration compressor, 350 hp
Evaporative cooler, 40 hp
Deethanizer, depropanizer, debutanizer reflux pumps, 3 x 10 hp
Interstage and discharge air coolers, 2x 10 hp
NGL Product Cooler, 10 hp
Circulating Cooling water pump, 10 hp

Additional reflux pump, 10 hp
Lube oil pump for refrigerant compressor, 10 hp
Standby lube oil pump for feed compressor, 10 hp

Total = 1190 hp

As per District policy APR 1035 Flexibility in Equipment Descriptions in ATCs, some flexibility in the final specifications of the equipment is requested and will be allowed as stated in the following ATC conditions:

The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]

The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010]

Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]

No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]

VI. Emission Control Technology Evaluation

VOC emissions from fugitive component leaks will be minimized with implementation of a leak detection and repair program, as required by Rules 4621 and 4624.

VII. General Calculations

A. Assumptions

- Facility operates 24 hr/day, 365 day/yr
- Hydrocarbon fugitive emissions are 100% VOCs
- In the GHG fugitive emissions calculation RSG is assumed to be 19 mole% methane and the RSG molecular weight is assumed to be 19.2916 (Gas Analysis in **Attachment III**).
- As the solvent plant gas composition is unknown it was neglected in GHG fugitive emissions calculations.
- Fugitive Emissions Component Counts included in **Attachment IV**.
- PTO S-37-38 fugitive emissions were not previously included in the potential to emit (PE) and are therefore calculated (PE1 and PE2) in this project. PE2 for '-38 assumes no pressure relief valves (PRVs) (no leaks > 10,000 ppmv from PRVs).
- 3.75 MMBtu/hr heater included in the S-37-38 equipment is not being modified and therefore is not subject to NSR considerations. Its emissions are restated for inclusion in the PAS emissions profile.

- PE for '-149 is calculated assuming the average leak concentration from all components of each type is equal to Refinery Correlation Equation screening value (SV) listed in the following table which are the Rule 4455 Table 1 Gas Leak Standard lower limits.

Equipment	#	% in Correlation Range	Correlation SV (ppm)	Correlation Equation
Valves	829	100	200	$2.27E-06(SV)^{0.747}$
Pump seals	25	100	500	$5.07E-06(SV)^{0.622}$
others	17	100	500	$8.69E-06(SV)^{0.642}$
Connectors	2,954	100	200	$1.53E-06(SV)^{0.736}$
Flanges	695	100	200	$4.53E-06(SV)^{0.706}$
Open-ended lines	0	100	500	$1.90E-06(SV)^{0.724}$

- PE2 for S-37-38 is calculated assuming number of leaker equal to the Rule 4455 threshold except for relief valves where no leaks were assumed (**Attachment IV**).
- For the S-37-38 HAE calculation, each leak was assumed to be completely repaired after 1 quarter and therefore the number of leaking components of a particular type divided by 4 is equivalent to the number of leaking components occurring over an entire year. Essential components were assumed to leak over the entire year as allows by Rule 4455 Section 5.3.6.2. The baseline period were the years 2009 and 2010 as a portion of the plant was not operating in 2011 and 2012 (the 2 years prior to receiving the application) and therefore 2011 and 2012 did not represent normal operation. The following data were submitted by the applicant for calculation of the HAE (5-15-13 email):

2009 # leaks > 10,000 ppmv

Equipment	QTR 1	QTR 2	QTR 3	QTR 4	# leakers/yr
Valves (LL)			1 (LL)	3 (LL)	$4/4 = 1$
Pump seals (LL)	1				$1/4 = 0.25$
Threaded Components And Others*	8			2	$10/4 = 2.5$

2010 # leaks > 10,000 ppmv

Equipment	QTR 1	QTR 2	QTR 3	QTR 4	# leakers/yr
Valves (LL)	1		1		1/4 = 0.25
Valves (G)**			1		1
Pump seals (LL)				1	1/4 = 0.25
Threaded Components And Others***	2		5		1 + 6/4 = 2.5

* other include components such as sight glasses, drains, gauges, unions that don't fall into the other categories

*essential component which is assumed to have leaked over entire year

**1 essential component which is assumed to have leaked over entire year and 6 others which leaked for one quarter

B. Emission Factors

S-37-38

Fugitive component VOC emissions will be calculated using CAPCOA Screening Range Emissions factors for Marketing Terminals, from California Implementation Guidelines for Estimating Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities, Table IV-2a, 1995 EPA Protocol Refinery Screening Value Range Emission Factors.

S-37-149

VOC emissions from fugitive components are calculated according to the Correlation Equation Method described in the CAPCOA publication *California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities* (February 1999). Table IV-3a CAPCOA - Revised 1995 EPA Protocol Refinery Correlation Equations for Refineries and Marketing Terminals.

The fugitive emissions calculations are included in **Attachment IV**.

PTO S-37-38-9 3.75 MMBtu/hr Heater

10. Heater shall not be fired at greater than 3.75 MMBtu/hr heat input rate. [District NSR Rule] Y

16. Emission rates shall not exceed any of the following limits: PM10: 0.06 lb/hr, SOx (as SO2): 1.89 lb/hr, NOx (as NO2): 0.55 lb/hr, VOC: 3.91 lb/hr or CO: 0.14 lb/hr. [District NSR Rule] Y

NOx: $0.55/3.75 = 0.15$ lb/MMBtu
 SOx: $1.89/3.75 = 0.05$ lb/MMBtu
 PM10: $0.06/3.75 = 0.017$ lb/MMBtu
 CO: $0.14/3.75 = 0.037$ lb/MMBtu
 VOC: $3.91/3.75 = 1.04$ lb/MMBtu

C. Calculations

1. Pre-Project Potential to Emit (PE1)

PTO S-37-38-9

VOC: 249.6 lb/day, 91,104 lb/yr (fugitive emissions, **Attachment IV**)

PE1		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	0.55 x 24 = 13.2	0.55 x 8760 = 4818
SO _x	1.89 x 24 = 45.4	1.89 x 8760 = 16,556
PM ₁₀	0.06 x 24 = 1.4	0.06 x 8760 = 526
CO	0.14 x 24 = 3.4	0.14 x 8760 = 1226
VOC	3.91 x 24 + 249.6 = 343.4	3.91 x 8760 + 91,104 = 125,356

2. Post Project Potential to Emit (PE2)

S-37-38-10

There is no change in combustion emissions.

VOC: 52.1 lb/day, 19,017 lb/yr (fugitive emissions, **Attachment IV**)

PE2		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	13.2	4818
SO _x	45.4	16,556
PM ₁₀	1.4	526
CO	3.4	1226
VOC	3.91 x 24 + 52.1 = 145.9	3.91 x 8760 + 19,017 = 53,269

S-37-149- LPG Recovery Unit

VOC: 27.7 lb/day, 10,103 lb/yr (fugitive emissions, **Attachment IV**)

Greenhouse Gas (GHG) Emissions

$18.5 \text{ lbmoles-CH}_4/100\text{-lbmole-RSG} \times 16 \text{ lb CH}_4/\text{lbmole-CH}_4 \times \text{lbmole-RSG}/19.2916 \text{ lb RSG}$
= 0.153 lb CH₄/lb RSG

$0.32 \text{ lbmoles-CO}_2/100\text{-lbmole-RSG} \times 44 \text{ lb CO}_2/\text{lbmole-CH}_4 \times \text{lbmole-RSG}/19.2916 \text{ lb RSG}$

= 0.0073 lb CO₂/lb RSG

New S-37-149 fugitive emissions are 10,103 lb VOC/yr (5.1 tons VOC/yr). Assuming this is 15.3 wt % methane (CH₄) and 0.73 wt% CO₂, as indicated by the gas analysis (**Attachment III**), the increase in CO₂e is

$$\begin{aligned} 5.1 \text{ tons/yr} \times 0.153 \text{ tons CH}_4/\text{ton} \times 0.9072 \text{ ton/mton} \times 23^* &= 16 \text{ mtons CO}_2\text{e/yr} \\ 5.1 \text{ tons/yr} \times 0.0073 \text{ tons CO}_2/\text{ton} \times 0.9072 \text{ ton/mton} &= \underline{0.03 \text{ mtons CO}_2\text{e/yr}} \\ \text{Total} &= 16 \text{ mtons CO}_2\text{e/yr} \end{aligned}$$

*GWP for methane is 23 lb CO₂e/lb CH₄

The increase is less than the CO₂e significance threshold of 230 mtons/yr.

The emissions profiles are included in **Attachment V**.

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to District Rule 2201, the SSPE1 is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions (AER) that have occurred at the source, and which have not been used on-site.

Facility emissions are already above the Offset and Major Source Thresholds for VOC emissions; therefore, SSPE1 calculations are not necessary.

4. Post Project Stationary Source Potential to Emit (SSPE2)

Since facility emissions are already above the Offset and Major Source Thresholds for VOC emissions, SSPE2 calculations are not necessary.

5. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)
- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year)*					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	162,903	93,441	40,581	922,334	303,885
SSIPE	0	0	0	0	53,269 + 10,103 - 125,356 = - 61,984
SSPE2	162,903	93,441	40,581	922,334	241,901
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	Yes	Yes

*SSPE calculator – emissions increases from outstanding ATCs are not included as they involve changes in VOC emissions only

This source is an existing Major Source for NO_x, CO, and VOC emissions and will remain a Major Source for NO_x, CO, and VOC. No change in other pollutants are proposed or expected as a result of this project.

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination (tons/year)							
	NO ₂	VOC	SO ₂	CO	PM	PM ₁₀	CO _{2e}
Estimated Facility PE before Project Increase	81.4	152	46.7	461.2	20.3	20.3	>100,000*
PSD Major Source Thresholds	100	100	100	100	100	100	100,000
PSD Major Source ? (Y/N)	N	Y	N	Y	N	N	Y

*the facility has several large combustion sources

As shown above, the facility is an existing major source for PSD for at least one pollutant. Therefore the facility is an existing major source for PSD.

6. Baseline Emissions (BE)

The BE calculation (in lbs/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

As shown in Section VII.C.5 above, the facility is a Major Source for VOCs. BE for NO_x, SO_x, PM₁₀, and CO are not relevant as the S-37-38 solvent heater is not being modified.

BE VOC

S-37-38 is not a Highly Utilized, Fully-Offset, or Clean Emissions Unit and therefore

BE = HAE

Applicant has provided the following actual VOC fugitive emissions for the years 2009 and 2010 (please see **Attachment VI**).

2009 VOC = 71.6 lb/day
2010 VOC = 82.1 lb/day

Average VOC = 76.9 lb/day
Therefore BE = HAE = 76.9 lb/day x 365 day/yr
= 28,069 lb/yr

S-37-149

Since this is a new emissions unit, BE = PE1 = 0 for all pollutants.

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

Since this facility is a major source for VOCs, the only pollutant subject to NSR considerations, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if the SB 288 Major Modification calculation is required.

SB 288 Major Modification Thresholds			
Pollutant	Project PE2 (lb/year)	Threshold (lb/year)	SB 288 Major Modification Calculation Required?
NO _x	Na*	50,000	No
SO _x	Na*	80,000	No
PM ₁₀	Na*	30,000	No
VOC	19,017 + 10,103 = 29,120	50,000	No

*Not applicable, solvent heater not being modified

Since the project's PE2 does not surpass the SB 288 Major Modification Thresholds for VOCs, the project is not a SB288 Major Modification.

8. Federal Major Modification

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA. SB 288 Major Modifications are not Federal Major Modifications if they meet the criteria of the "Less-Than-Significant Emissions Increase" exclusion.

A Less-Than-Significant Emissions Increase exclusion is for an emissions increase for the project, or a Net Emissions Increase for the project (as defined in 40 CFR 51.165 (a)(2)(ii)(B) through (D), and (F)), that is not significant for a given regulated NSR pollutant, and therefore is not a Federal Major Modification for that pollutant.

- To determine the post-project projected actual emissions from existing units, the provisions of 40 CFR 51.165 (a)(1)(xxviii) shall be used.
- To determine the pre-project baseline actual emissions, the provisions of 40 CFR 51.165 (a)(1)(xxxv)(A) through (D) shall be used.
- If the project is determined not to be a Federal Major Modification pursuant to the provisions of 40 CFR 51.165 (a)(2)(ii)(B), but there is a reasonable possibility that the project may result in a significant emissions increase, the owner or operator shall comply with all of the provisions of 40 CFR 51.165 (a)(6) and (a)(7).
- Emissions increases calculated pursuant to this section are significant if they exceed the significance thresholds specified in the table below.

Pollutant	Threshold (lb/year)
VOC	0
NO _x	0
PM ₁₀	30,000
SO _x	80,000

The Net Emissions Increases (NEIs) for purposes of determination of a "Less-Than-Significant Emissions Increase" exclusion will be calculated below to determine if this project qualifies for such an exclusion.

Net Emission Increase for New Unit (NEI)

Per 40 CFR 51.165 (a)(2)(ii)(D) for new emissions unit in this project,

$$\text{NEI} = \text{PE2} - \text{BAE}$$

BAE = 0 for the new emissions unit; therefore,

$$\text{NEI} = \text{PE2}$$

Units S-37-149 is a new unit, and baseline actual emissions are equal to zero, and therefore, pursuant to 40 CFR 51.165 (a)(2)(ii)(D), the Net Emissions Increases are equal to the post-project potential to emit.

$$\text{NEI} = 27.7 \text{ lb VOC/day, } 10,103 \text{ lb VOC/yr}$$

As the threshold for VOC in the above table is exceeded, the project is a Federal Major Modification.

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- Greenhouse gases (GHG): CO₂ and CH₄

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII.C.5 of this document).

In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

I. Project Location Relative to Class 1 Area

As demonstrated in the “PSD Major Source Determination” Section above, the facility was determined to be a existing major source for PSD. Because the project is not located within 10 km of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

II. Significance of Project Emission Increase Determination

a. Potential to Emit of attainment/unclassified pollutant for New or Modified Emission Units vs PSD Significant Emission Increase Thresholds

As a screening tool, the potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if total

potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)						
	NO2	SO2	CO	PM	PM10	CO2e
Total PE from New and Modified Units	0	0	0	0	0	16*
PSD Significant Emission Increase Thresholds	40	40	100	25	15	75,000
PSD Significant Emission Increase?	N	N	N	N	N	N

*as calculated in Calculations Section above

As demonstrated above, because the project has a total potential to emit from all new and modified emission units below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen.

S-37-38

PE2 = PE1 for NOx, SOx, PM10, and CO and therefore QNEC = 0 for these air contaminants.

For VOCs the QNEC is

$$\begin{aligned} (\text{PE2} - \text{PE1})/4 &= (53,269 - 125,356)/4 \\ &= \underline{-18,022 \text{ lb VOC/qtr}} \end{aligned}$$

S-37-149

As S-37-149 is a new emissions unit, QNEC for VOCs is PE/4 (and zero for NOx, SOx, PM10, and CO).

$$\begin{aligned} \text{QNEC} &= 10,103/4 \\ &= \underline{2,526 \text{ lb VOC/qtr}} \end{aligned}$$

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

- a. Any new emissions unit with a potential to emit exceeding two pounds per day,
- b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

As seen in Section VII.C.2 above, the applicant is proposing to install a LPG recovery facility a PE greater than 2 lb/day for VOC. BACT is triggered for VOC.

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

$$\text{AIPE} = \text{PE2} - \text{HAPE}$$

Where,

AIPE = Adjusted Increase in Permitted Emissions, (lb/day)

PE2 = Post-Project Potential to Emit, (lb/day)

HAPE = Historically Adjusted Potential to Emit, (lb/day)

$$\text{HAPE} = \text{PE1} \times (\text{EF2}/\text{EF1})$$

Where,

PE1 = The emissions unit's PE prior to modification or relocation, (lb/day)

EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1

EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation

$$\text{AIPE} = \text{PE2} - (\text{PE1} * (\text{EF2} / \text{EF1}))$$

S-37-38 (EF1 = EF2):

$$\begin{aligned} \text{AIPE} &= 52.1 - (249.6 * (1.0)) \\ &= -197.5 \text{ lb/day} \end{aligned}$$

BACT is not triggered for modification purposes.

d. SB 288/Federal Major Modification

As discussed in Section VII.C.7 above, this project does constitute an SB 288 and/or Federal Major Modification for VOC emissions. Therefore BACT is triggered for VOCs for all emissions units in the project for which there is an emission increase.

2. BACT Guideline

The following BACT Guidelines (see **Attachment VII**) are applicable:

7.2.2 Petroleum Refining – Valves and Connectors

7.2.3 Petroleum Refining – Pumps and Compressor Seals

3. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District's NSR Rule.

Pursuant to the attached Top-Down BACT Analysis (see **Attachment VII**), BACT has been satisfied with the following:

S-37-149

For new fugitive emissions components (valves, connectors, pump and compressor seals) the following is required:

Leak defined as a reading of methane, in excess of 100 ppmv for valves and connectors and in excess of 500 ppmv for pump and compressor seals above background when measured per EPA Method 21 and an Inspection and Maintenance Program pursuant to District Rule 4455.

B. Offsets

1. Offset Applicability

Offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the SSPE2 equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO_x	SO_x	PM₁₀	CO	VOC
SSPE2	162,903	93,441	40,581	922,334	241,901
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	Yes	Yes	Yes	Yes

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for VOCs. Therefore offset calculations will be required for this project.

The quantity of offsets in pounds per year for NO_x is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = $(\Sigma[PE2 - BE] + ICCE) \times DOR$, for all new or modified emissions units in the project,

Where,

PE2 = Post Project Potential to Emit, (lb/year)

BE = Baseline Emissions, (lb/year)

ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, Located at a Major Source.

otherwise,

BE = HAE

The facility is proposing to install new emissions units; therefore BE = 0 and to modify S-37-38 (BE = HAE). Also, there are no increases in cargo carrier emissions; therefore offsets can be determined as follows:

$$\text{Offsets Required (lb/year)} = (\sum [\text{PE2} - \text{BE}] + \text{ICCE}) \times \text{DOR}$$

VOC

Unit	PE2 – BE (lb/yr)
S-37-38	19,017* – 28,069 (HAE) = -9052
S-37-149	10,103 – 0
Total	1,051

*solvent heater emissions not included as not being modified

The applicant has stated that the facility plans to use ERC certificate S-3944-1 to offset the increases in VOC emissions associated with this project. At an offset ratio of 1.5:1 (Federal Major Modification) the offset requirement is $1.5 \times 1,051/4 = 394$ lb/qtr.

Available (normal type), Reserved in PAS (bold type)

Certificate	1 st QTR	2 nd QTR	3 rd QTR	4 th QTR
ERC #S-3944-1	394	394	394	394

Proposed Rule 2201 (offset) Conditions:

Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 394 lb, 2nd quarter - 394 lb, 3rd quarter - 394 lb, and fourth quarter - 394 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201]

ERC Certificate Number S-3944-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]

C. Public Notification

1. Applicability

Public noticing is required for:

- a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
- b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- c. Any project which results in the offset thresholds being surpassed, and/or
- d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant.

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

As demonstrated in VII.C.7, this project is a Federal Major Modification. Therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

Applications which include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table.

Offset Thresholds				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	162,903	162,903	20,000 lb/year	No
SO _x	93,441	93,441	54,750 lb/year	No
PM ₁₀	40,581	40,581	29,200 lb/year	No
CO	922,334	922,334	200,000 lb/year	No
VOC	303,885	241,901	20,000 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	162,903	162,903	0	20,000 lb/year	No
SO _x	93,441	93,441	0	20,000 lb/year	No
PM ₁₀	40,581	40,581	0	20,000 lb/year	No
CO	922,334	922,334	0	20,000 lb/year	No
VOC	303,885	241,901	-61,984	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

2. Public Notice Action

As discussed above, public noticing is required for this project for VOC emissions as the project is a Federal Major Modification. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Proposed DELs for S-37-38 and '-149 are based on fugitive component counts and fugitive emissions factors.

Proposed Rule 2201 (DEL) Conditions:

S-37-38

Emissions from fugitive emissions components shall not exceed 52.1 lb/day. [District Rule 2201] Y

There shall be no leaks of 10,000 ppmv or greater of any pressure relief devices installed as part of the unit. [District Rule 2201] Y

S-37-149

Total fugitive emissions rate from valves, pumps, flanges, others, and connectors from components in this permit unit shall be periodically calculated as described below using the California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities (February 1999), Table IV-3a:CAPCOA-Revised 1995 EPA Correlation Equations and Factors for Refineries and Marketing Terminals (as described in the following conditions) and shall not exceed 27.7 lb/day. [District Rule 2201] Y

Leak defined as a reading of methane, in excess of 100 ppmv for valves and connectors and in excess of 500 ppmv for pump and compressor seals above background when measured per EPA Method 21 and an Inspection and Maintenance Program pursuant to District Rule 4455. [District Rule 2201] Y

E. Compliance Assurance

1. Source Testing

Pursuant to District Policy APR 1705, source testing is not required to demonstrate compliance with Rule 2201.

2. Monitoring

No monitoring is required to demonstrate compliance with Rule 2201.

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition(s) will appear on the ATCs:

'-38

Permittee shall maintain accurate component count and emissions calculated using the 1995 EPA Protocol Refinery Screening Value Range Emissions Factors, from California Implementation Guidelines for Estimating Emissions of Fugitive Hydrocarbon Leaks at Marketing Terminals, Table IV-2a, February 1999.[District Rule 2201] Y

The permittee shall keep accurate records of refinery fuel gas content, for a period of five years, and shall make such records available for District inspection upon request. [District NSR Rule] Y

Operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Y

'-147

Permit holder shall maintain accurate records of component counts and resultant emissions according to CAPCOA's "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities," Table IV-3a (Feb 1999), CAPCOA-Revised 1995 EPA Correlation Equations and Factors for Refineries and Marketing Terminals. Permit holder shall update such records when new components are installed. Components shall be screened and leak rate shall be measured at least once each quarter. If compliance with the daily emission limit is shown during each of five (5) consecutive quarterly inspections, the inspection frequency may be changed from quarterly to annual. If any annual inspection shows non-compliance with the daily emission limit, then quarterly inspections shall be resumed. [District Rule 2201] Y

All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070] Y

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in

compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Sections VIII-Rule 2201-C.1.a and VIII-Rule 2201-C.1.b, this facility is a new major source and this project does constitute a Federal Major Modification, therefore this requirement is applicable. Included in **Attachment VIII** is Kern's Corporation's compliance certification.

H. Alternate Siting Analysis

Since the project will authorize a LPG recovery facility to be used at the same location, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale, and would therefore result in a much greater impact.

I. Ambient Air Quality Standards

There are no State or Federal Ambient Air Quality Standards for VOCs, consequently an Ambient Air Quality analysis was not required.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. Section 3.29 defines a significant permit modification as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

The project is Federal Major Modification and therefore is also a Title V Significant Modification. As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The Title V Compliance Certification form is included in **Attachment VIII**.

Rule 4001 New Source Performance Standards (NSPS)

The facility is currently in compliance with Subpart VV. The project is not expected to change the compliance status and therefore continued compliance is expected.

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to solvent recovery facilities at oil refineries.

Rule 4101 Visible Emissions

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity). The 3.75 MMBtu/hr solvent plant heater is current in

compliance and the project will not affect compliance status. Continued compliance is expected.

Rule 4102 Nuisance

Rule 4102 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected.

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (**Attachment IX**), the total facility prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

HRA Summary		
Unit	Cancer Risk	T-BACT Required
S-37-149	0.16 per million	No

Special permit conditions:

VOC emissions shall not exceed 10,103 lb/yr. [District Rule 4102]Y

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

The 3.75 MMBtu/hr solvent plant heater is current in compliance and the project will not affect compliance status. Continued compliance is expected.

Rule 4301 Fuel Burning Equipment

This rule specifies maximum emission rates in lb/hr for SO₂, NO₂, and combustion contaminants (defined as total PM in Rule 1020). This rule also limits combustion contaminants to ≤ 0.1 gr/scf.

The 3.75 MMBtu/hr solvent plant heater is currently in compliance and the project will not affect compliance status. Continued compliance is expected.

Rule 4307 Boilers, Steam Generators and Process Heaters – 2.0 MMBtu/hr to 5.0 MMBtu/hr

This rule applies to any gaseous fuel or liquid fuel fired boiler, steam generator, or process heater with a total rated heat input of 2.0 MMBtu/hr up to 5.0 MMBtu/hr. The full compliance date for S-37-38 is 1/1/2016 (Title V Renewal Project S37, 1063228).

Compliance is expected.

Rule 4455 Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants

This rule limits VOC emissions from leaking components at petroleum refineries, gas liquid process facilities and chemical plants, and is applicable to components that contain or contact VOC at such facilities. Rule requirements are included on the facility wide PTO S-37-0-0.

Compliance with this rule is expected.

District Rule 4801 Sulfur Compounds

A person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding in concentration at the point of discharge: 0.2 % by volume calculated as SO₂, on a dry basis averaged over 15 consecutive minutes. The solvent plant heater is currently in compliance with the rule. Continued compliance is expected.

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

California Environmental Quality Act (CEQA)

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

It is determined that no other agency has or will prepare an environmental review document for the project. Thus the District is the Lead Agency for this project.

The District’s engineering evaluation (this document –Section VII) demonstrates that the project would not result in an increase in project specific greenhouse gas emissions. The District therefore concludes that the project would have a less than cumulatively significant impact on global climate change.

Per District Policy, project specific greenhouse gas emissions less than or equal to 230 metric tons-CO2e/year are considered to be zero for District permitting purposes and are exempt from further environmental review.

District CEQA Findings

The District is the Lead Agency for this project because there is no other agency with broader statutory authority over this project. The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue ATCs S-37-38-10 and '-149-0 subject to the permit conditions on the attached draft ATC in **Attachment X**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-37-38	3020-02-F	3.75 MMBtu/hr	\$607.00
S-37-149	3020-01-G	1190 hp	\$815.00

Attachments

- I: Current PTO
- II: Plot Plan and Process Flow Diagram
- III: Gas Analysis
- IV: Fugitive Emissions
- V: Emissions Profiles
- VI: HAE Emissions Calculations
- VII: BACT Guidelines
- VIII: BACT Analysis
- IX: Statewide and Title V Compliance Certification
- X: HRA
- XI: Draft ATCs

**ATTACHMENT I:
Current PTO**

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-37-38-9

EXPIRATION DATE: 08/31/2016

SECTION: 25 **TOWNSHIP:** 30S **RANGE:** 28E

EQUIPMENT DESCRIPTION:

SOLVENT UNIT INCLUDING: NAPHTHA FRACTIONATOR (V-1), LIGHT SOLVENT FRACTIONATOR (V-3), V M & P NAPHTHA FRACTIONATOR (V-5), MINERAL SPIRITS FRACTIONATOR (V-7), 4 REFLUX DRUMS (V-2, V-4, V-6 AND V-8) AND 3,750,000 BTU/HR GAS FIRED FIRE TUBE HEATER (H-1)

PERMIT UNIT REQUIREMENTS

1. Heater shall be fired on purchased natural gas or platformer stabilizer off-gas only. [District NSR Rule] Federally Enforceable Through Title V Permit
2. Reflux drums (V-2, V-4, V-6 and V-8) shall vent only to vapor control system on permit S-37-8. [District NSR Rule] Federally Enforceable Through Title V Permit
3. There shall be no pressure relief valves or vents designed to emit air contaminants to the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
4. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081] Federally Enforceable Through Title V Permit
5. Heater shall be equipped with fuel flowrate indicator. [District NSR Rule] Federally Enforceable Through Title V Permit
6. Refinery fuel gas supply line shall be equipped with continuous H2S monitor/recorder. [40 CFR 60.105a(4)] Federally Enforceable Through Title V Permit
7. Number of fugitive components shall not exceed the following: Valves: 302, Flanges: 94 and Pump Seals: 9. [District NSR Rule] Federally Enforceable Through Title V Permit
8. Fuel gas sulfur content (as H2S) shall not exceed 0.10 gr/ dscf (160 ppmv) over a three hour rolling average and shall be continuously monitored and recorded. [40 CFR 60, Subpart J, 60.104] Federally Enforceable Through Title V Permit
9. Heater shall operate with no emissions in excess of 5% opacity or source testing shall be required to document emission rates. [District NSR Rule] Federally Enforceable Through Title V Permit
10. Heater shall not be fired at greater than 3.75 MMBtu/hr heat input rate. [District NSR Rule] Federally Enforceable Through Title V Permit
11. If solvent plant produces odoriferous wastewater, such wastewater shall not be transported in open system or disposed of in open air site(s). [District NSR Rule] Federally Enforceable Through Title V Permit
12. If solvent unit products are sold within Kern County, Kern Oil & Refining Company shall supply SJVUAPCD with list of current customers upon request. [District NSR Rule] Federally Enforceable Through Title V Permit
13. The permittee shall keep accurate records of refinery fuel gas content, for a period of five years, and shall make such records available for District inspection upon request. [District NSR Rule] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

14. The permittee shall comply with all applicable notification, recordkeeping and monitoring requirements of Rule 4001. [District Rule 4001] Federally Enforceable Through Title V Permit
15. This permit to operate does not authorize steam production increase over S-37-6 permit limit. [District NSR Rule] Federally Enforceable Through Title V Permit
16. Emission rates shall not exceed any of the following limits: PM10: 0.06 lb/hr, SOx (as SO2): 1.89 lb/hr, NOx (as NO2): 0.55 lb/hr, VOC: 3.91 lb/hr or CO: 0.14 lb/hr. [District NSR Rule] Federally Enforceable Through Title V Permit
17. Operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
18. Particulate matter emissions shall not exceed 0.1 grain/dscf. Emissions of combustion contaminants shall not exceed 0.1 grain per cubic foot of gas calculated to 12% CO2 at dry standard conditions. Emissions of combustion contaminants shall not exceed ten (10) pounds per hour. [District Rules 4201, 3.1 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit
19. Emissions of sulfur compounds from this unit shall not exceed 200 lb per hour, calculated as SO2. [District Rule 2520, 9.3.2; District Rule 4301, 5.2.1] Federally Enforceable Through Title V Permit
20. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period. [District Rule 2520, 9.3.2; Kern County Rule 407; District Rule 4801] Federally Enforceable Through Title V Permit
21. Compliance with sulfur compound emission limits may be demonstrated by firing this unit either on PUC or FERC regulated natural gas or refinery gas with a sulfur content of no more than 0.1 grain-H2S/dscf (160 ppmv) according to the continuous H2S monitor installed downstream of the sulfur recovery unit. [District Rules 4301, 4801 and 2520, 9.3.2] Federally Enforceable Through Title V Permit
22. Operator shall report all rolling 3-hour periods during which the average concentration of H2S as measured by the H2S continuous monitoring system exceeds 0.10 gr/dscf (160 ppmv). [40 CFR Part 60, Subpart J, 60.105(e)(3)(ii)] Federally Enforceable Through Title V Permit
23. Operator shall determine compliance with the H2S standard using EPA Method 11. [40 CFR Part 60, Subpart J, 60.106(e)] Federally Enforceable Through Title V Permit
24. Except for complying with the applicable requirements of Sections 6.1 and 7.3, the requirements of this rule shall not apply to 1) components subject to Rule 4623 (adopted 5/19/05), 2) pressure relief devices, pumps, and compressors equipped with a closed vent system as defined in Section 3.0, 3) components buried below ground, 4) components exclusively handling liquid streams which have less than 10 percent by weight (<10 wt%) evaporation at 150 C, 5) components exclusively handling liquid streams with a VOC content less than ten percent by weight (<10 wt%), 6) components exclusively handling gas/vapor streams with a VOC content of less than one percent by weight (<1 wt%), 7) components incorporated in lines exclusively in vacuum service, 8) components exclusively handling commercial natural gas, and 9) one-half inch nominal or less stainless steel tube fittings which have been demonstrated to the Air Pollution Control Officer (APCO) to be leak-free based on initial inspection. [District Rule 4455, 4.1 & 4.2] Federally Enforceable Through Title V Permit
25. Except for components subject to Rule 4623 (Storage of Organic Liquids) or for components included in the inspection and maintenance (I&M) program implemented pursuant to Section 5.7 of Rule 4623, the operator shall not use any component that leaks in excess of the allowable leak standards of Rule 4455, or is found to be in violation of the provisions specified in Section 5.1.3. A component identified as leaking in excess of an allowable leak standard may be used provided it has been identified with a tag for repair, has been repaired, or is awaiting re-inspection after repair, within the applicable time period specified within the rule. [District Rule 4455, 5.1.1] Federally Enforceable Through Title V Permit
26. Each hatch shall be closed at all times except during sampling or adding of process material through the hatch, or during attended repair, replacement, or maintenance operations, provided such activities are done as expeditiously as possible and with minimal spillage of material and VOC emissions to the atmosphere. [District Rule 4455, 5.1.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

27. The operator shall be in violation of Rule 4455 if any District inspection demonstrates that one or more of the conditions in Section 5.1.4 (Leak Standards) exist at the facility. [District Rule 4455, 5.1.3.1] Federally Enforceable Through Title V Permit
28. Except for annual operator inspection described in Section 5.1.3.2.3, any operator inspection that demonstrates that one or more of the conditions in Section 5.1.4 exist at the facility shall not constitute a violation of Rule 4455 if the leaking components are repaired as soon as practicable but not later than the time frame specified in Rule 4455. Such components shall not be counted towards determination of compliance with the provisions of Section 5.1.4. [District Rule 4455, 5.1.3.2.1] Federally Enforceable Through Title V Permit
29. Leaking components detected during operator inspection pursuant Section 5.1.3.2.1 that are not repaired, replaced, or removed from operation as soon as practicable but not later than the time frame specified in Rule 4455 shall be counted toward determination of compliance with the provisions of Section 5.1.4. [District Rule 4455, 5.1.3.2.2] Federally Enforceable Through Title V Permit
30. Any operator inspection conducted annually for a component type (including operator annual inspections pursuant to Section 5.2.5, 5.2.6, 5.2.7, or 5.2.8) that demonstrates one or more of the conditions in Section 5.1.4 exist at the facility shall constitute a violation of Rule 4455 regardless of whether or not the leaking components are repaired, replaced, or removed from operation within the allowable repair time frame specified in Rule 4455. [District Rule 4455, 5.1.3.2.3] Federally Enforceable Through Title V Permit
31. A component shall be considered leaking if one or more of the conditions specified in Sections 5.1.4.1 through 5.1.4.4 of Rule 4455 exist at the facility. Readings shall be taken as methane using a portable hydrocarbon detection instrument and shall be made in accordance with the methods specified in Section 6.4.1 of Rule 4455. [District Rule 4455, 5.1.4] Federally Enforceable Through Title V Permit
32. The operator shall audio-visually inspect for leaks all accessible operating pumps, compressors and Pressure Relief Devices (PRDs) in service at least once every 24 hours, except when operators do not report to the facility for that given 24 hours. Any identified leak that cannot be immediately repaired shall be reinspected within 24 hours using a portable analyzer. If a leak is found, it shall be repaired as soon as practical but not later than the time frame specified in Table 3. [District Rule 4455, 5.2.1 & 5.2.2] Federally Enforceable Through Title V Permit
33. The operator shall inspect all components at least once every calendar quarter, except for inaccessible components, unsafe-to-monitor components and pipes. Inaccessible components, unsafe-to-monitor components and pipes shall be inspected in accordance with the requirements set forth in Sections 5.2.5, 5.2.6, and 5.2.7. New, replaced, or repaired fittings, flanges and threaded connections shall be inspected immediately after being placed into service. Components shall be inspected using EPA Method 21. [District Rule 4455, 5.2.3, 5.2.4, 5.2.5, 5.2.6 & 5.2.7] Federally Enforceable Through Title V Permit
34. The operator may apply for a written approval from the APCO to change the inspection frequency from quarterly to annually for a component type, provided the operator meets all the criteria specified in Sections 5.2.8.1 through 5.2.8.3. This approval shall apply to accessible component types, specifically designated by the APCO, except pumps, compressors, and PRDs which shall continue to be inspected on a quarterly basis. [District Rule 4455, 5.2.8] Federally Enforceable Through Title V Permit
35. An annual inspection frequency approved by the APCO shall revert to quarterly inspection frequency for a component type if either the operator inspection or District inspection demonstrates that a violation of the provisions of Sections 5.1, 5.2 and 5.3 of the rule exists for that component type, or the APCO issued a Notice of Violation for violating any of the provisions of Rule 4455 during the annual inspection period for that component type. When the inspection frequency changes from annual to quarterly inspections, the operator shall notify the APCO in writing within five (5) calendar days after changing the inspection frequency, giving the reason(s) and date of change to quarterly inspection frequency. [District Rule 4455, 5.2.9 & 5.2.10] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

36. The operator shall initially inspect a process PRD that releases to the atmosphere as soon as practicable but not later than 24 hours after the time of the release. To insure that the process PRD is operating properly, and is leak-free, the operator shall re-inspect the process PRD not earlier than 24 hours after the initial inspection but not later than 15 calendar days after the date of the release using EPA Method 21. If the process PRD is found to be leaking at either inspection, the PRD leak shall be treated as if the leak was found during quarterly operator inspections. [District Rule 4455, 5.2.11] Federally Enforceable Through Title V Permit
37. Except for process PRD, a component shall be inspected within 15 calendar days after repairing the leak or replacing the component using EPA Method 21. [District Rule 4455, 5.2.12] Federally Enforceable Through Title V Permit
38. A District inspection in no way fulfills any of the mandatory inspection requirements that are placed upon operators and cannot be used or counted as an inspection required of an operator. Any attempt by an operator to count such District inspections as part of the mandatory operator's inspections is considered to be willful circumvention and is a violation of this rule. [District Rule 4455, 5.2.13] Federally Enforceable Through Title V Permit
39. Upon detection of a leaking component, the operator shall affix to that component a weatherproof readily visible tag that contains the information specified in Section 5.3.3. The tag shall remain affixed to the component until the leaking component has been repaired or replaced; has been re-inspected using EPA Method 21; and is found to be in compliance with the requirements of Rule 4455. [District Rule 4455, 5.3.1 5.3.2 and 5.3.3] Federally Enforceable Through Title V Permit
40. An operator shall minimize all component leaks immediately to the extent possible, but not later than one (1) hour after detection of leaks in order to stop or reduce leakage to the atmosphere. [District Rule 4455, 5.3.4] Federally Enforceable Through Title V Permit
41. If the leak has been minimized but the leak still exceeds the applicable leak standards of Rule 4455, an operator shall repair or replace the leaking component, vent the leaking component to a closed vent system, or remove the leaking component from operation as soon as practicable but not later than the time period specified in Table 3. For each calendar quarter, the operator may be allowed to extend the repair period as specified in Table 3, for a total number of leaking components, not to exceed 0.05 percent of the number of components inspected, by type, rounded upward to the nearest integer where required. [District Rule 4455, 5.3.5] Federally Enforceable Through Title V Permit
42. If the leaking component is an essential component or a critical component and which cannot be immediately shut down for repairs, the operator shall minimize the leak within one hour after detection of the leak. If the leak has been minimized, but the leak still exceeds any of the applicable leak standards of Rule 4455, the essential component or critical component shall be repaired or replaced to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection, whichever comes earlier. [District Rule 4455 5.3.6] Federally Enforceable Through Title V Permit
43. For any component that has incurred five repair actions for major gas leaks or major liquid leaks, or any combination of major gas leaks and major liquid leaks within a continuous 12-month period, the operator shall comply with at least one of the requirements specified in Sections 5.3.7.1, 5.3.7.2, 5.3.7.3, or 5.3.7.4 by the applicable deadlines specified in Sections 5.3.7.5 and 5.3.7.6. If the original leaking component is replaced with a new like-in-kind component before incurring five repair actions for major leaks within 12-consecutive months, the repair count shall start over for the new component. An entire compressor or pump need not be replaced provided the compressor part(s) or pump part(s) that have incurred five repair actions as described in Section 5.3.7 are brought into compliance with at least one of the requirements of Sections 5.3.7.1 through 5.3.7.6. [District Rule 4455, 5.3.7] Federally Enforceable Through Title V Permit
44. The operator shall monitor process PRD by using electronic process control instrumentation that allows for real time continuous parameter monitoring or by using telltale indicators for the process PRD where parameter monitoring is not feasible. [District Rule 4455, 5.4.1] Federally Enforceable Through Title V Permit
45. After a release from a process PRD in excess of 500 pounds of VOC in a continuous 24-hour period, the operator shall immediately conduct a failure analysis and implement corrective actions as soon as practicable but not later than 30 days to prevent the reoccurrence of similar release. For refineries processing greater than 20,000 barrels of crude oil per day, any subsequent release in excess of 500 pounds of VOC within a continuous 24-hour period shall be subject to the requirements of Section 5.4.5. [District Rule 4455, 5.4.3 & 5.4.4] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

46. The operator of a refinery processing greater than 20,000 barrels of crude oil per day shall connect all process PRDs serving that process equipment to an APCO-approved closed vent system as defined in Section 3.0 if any of the conditions specified in Sections 5.4.5.1 and 5.4.5.2 occurs. Process PRDs subject to the provisions of Section 5.4.5 shall be connected to an APCO-approved closed-vent system as soon as practicable, but no later than the first turnaround after the requirement to connect becomes effective. [District Rule 4455, 5.4.5] Federally Enforceable Through Title V Permit
47. All major components and critical components shall be physically identified clearly and visibly for inspection, repair, and recordkeeping purposes. The physical identification shall consist of labels, tags, manufacturer's nameplate identifier, serial number, or model number, or other system approved by the APCO that enables an operator or District personnel to locate each individual component. The operator shall replace tags or labels that become missing or unreadable as soon as practicable but not later than 24 hours after discovery. The operator shall comply with the requirements of Sections 6.1.4 if there is any change in the description of major components or critical components. [District Rule 4455, 5.5.1 & 5.5.2] Federally Enforceable Through Title V Permit
48. The operator shall keep a copy of the operator management plan at the facility and make it available to the APCO, ARB and US EPA upon request. By January 30 of each year, the operator shall submit to the APCO for approval, in writing, an annual report indicating any changes to the existing, approved operator management plan. [District Rule 4455, 6.1.2 & 6.1.4] Federally Enforceable Through Title V Permit
49. The operator shall maintain an inspection log containing, at a minimum, 1) total number of components inspected, and total number and percentage of leaking components found by component types, 2) location, type, name or description of each leaking component, and description of any unit where the leaking component is found, 3) date of leak detection and method of leak detection, 4) for gaseous leaks, record the leak concentration in ppmv, and for liquid leaks record whether the leak is a major liquid leak or a minor liquid leak, 5) date of repair, replacement, or removal from operation of leaking components, 6) identification and location of essential component and critical components found leaking that cannot be repaired until the next process unit turnaround or not later one year after leak detection, whichever comes earlier, 7) methods used to minimize the leak from essential components and critical components that cannot be repaired until the next process unit turnaround or not later one year after leak detection, whichever comes earlier, 8) after the component is repaired or is replaced, the date of reinspection and the leak concentration in ppmv, 9) inspector's name, business mailing address, and business telephone number, and 10) the facility operator responsible for the inspection and repair program shall sign and date the inspection log certifying the accuracy of the information recorded in the log. [District Rule 4455, 6.2.1] Federally Enforceable Through Title V Permit
50. Records of each calibration of the portable hydrocarbon detection instrument utilized for inspecting components, including a copy of current calibration gas certification from the vendor of said calibration gas cylinder, the date of calibration, concentration of calibration gas, analyzer reading of calibration gas before adjustment, instrument reading of calibration gas after adjustment, calibration gas expiration date, and calibration gas cylinder pressure at the time of calibration. [District Rule 4455, 6.2.3] Federally Enforceable Through Title V Permit
51. The operator shall notify the APCO, by telephone or other methods approved by the APCO, of any process PRD release described in Sections 5.4.4 and 5.4.5, and any release in excess of the reportable quantity limits as stipulated in 40 CFR, Part 117, Part 302 and Part 355, including any release in excess of 100 pounds of VOC, within one hour of such occurrence or within one hour of the time said person knew or reasonably should have known of its occurrence. [District Rule 4455, 6.3.1] Federally Enforceable Through Title V Permit
52. The operator shall submit a written report to the APCO within thirty (30) calendar days following a PRD release subject to 6.3.1. The written report shall include 1) process PRD type, size, and location, 2) date, time and duration of the process PRD release, 3) types of VOC released and individual amounts, in pounds, including supporting calculations, 4) cause of the process PRD release, and 5) corrective actions taken to prevent a subsequent process PRD release. [District Rule 4455 6.3.2] Federally Enforceable Through Title V Permit
53. Copies of all records shall be retained for a minimum of five (5) years after the date of an entry. Such records shall be made available to the APCO, ARB, or US EPA upon request. [District Rule 4455, 6.2.2, 6.2.3 & 6.2.4] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

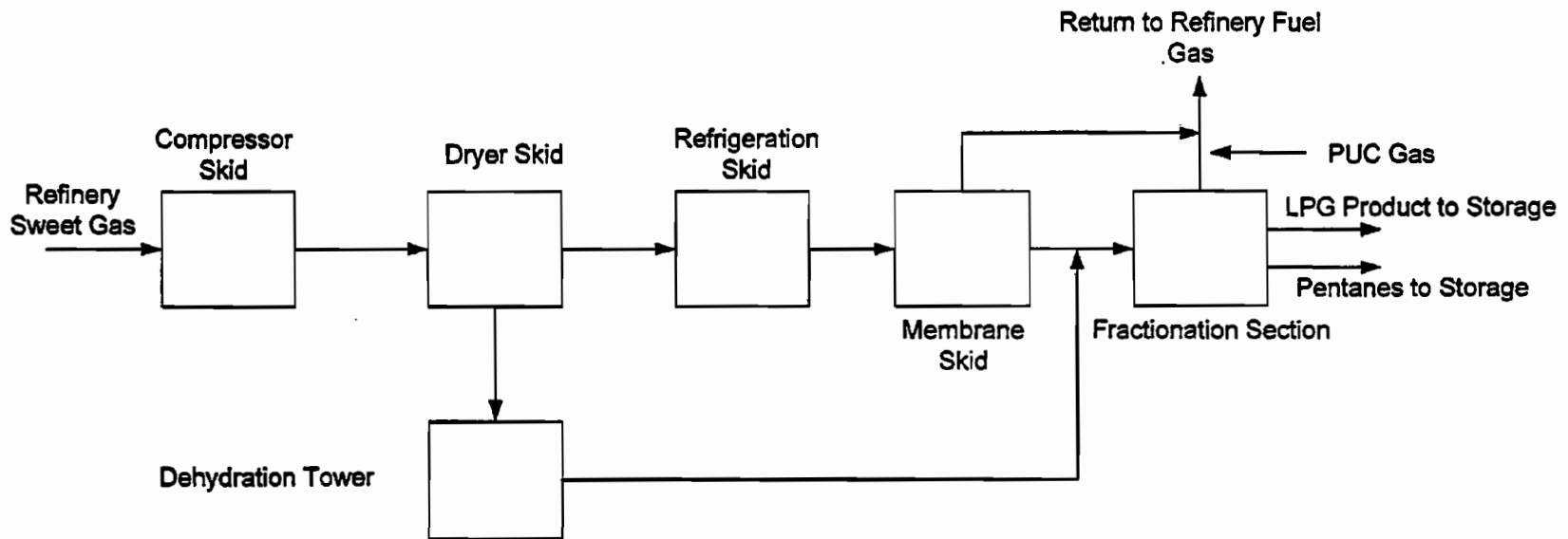
These terms and conditions are part of the Facility-wide Permit to Operate.

54. Measurements of gaseous leak concentrations shall be conducted according to US EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane. The instrument shall be calibrated in accordance with the procedures specified in US EPA Method 21 or the manufacturer's instruction, as appropriate, not more than 30 days prior to its use. The operator shall record the calibration date of the instrument. [District Rule 4455, 6.4.1] Federally Enforceable Through Title V Permit
55. The VOC content of exempt streams shall be determined using American Society of Testing and Materials (ASTM) D 1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 for liquids. [District Rule 4455, 6.4.2] Federally Enforceable Through Title V Permit
56. For exempt streams, the percent by volume liquid evaporated at 150 deg C shall be determined using ASTM D 86. [District Rule 4455, 6.4.3] Federally Enforceable Through Title V Permit
57. Equivalent test methods other than specified in Sections 6.4.1 through 6.4.5 may be used provided such test methods have received prior approval from the US EPA, ARB, and APCO. [District Rule 4455, 6.4] Federally Enforceable Through Title V Permit


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ATTACHMENT II

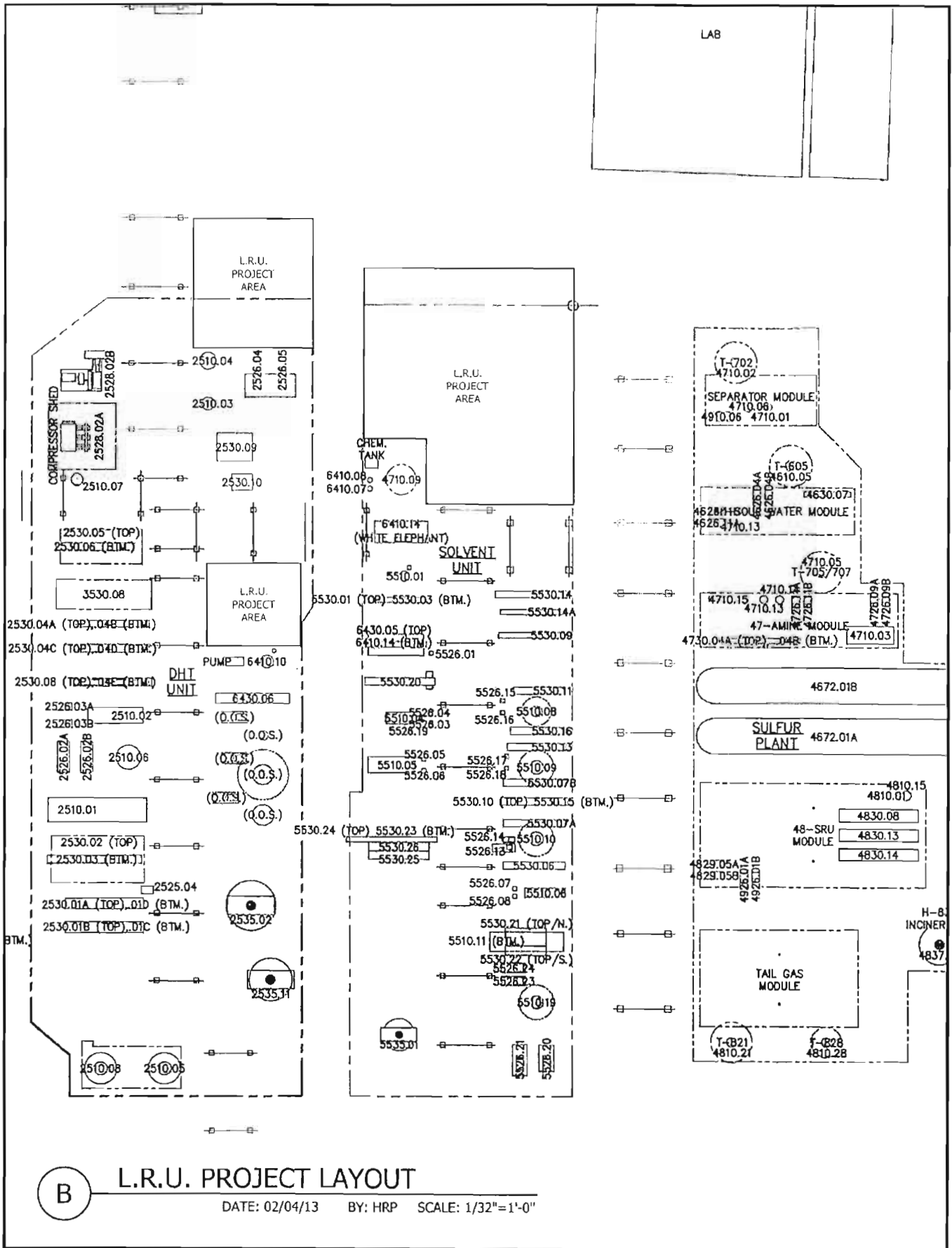
Plot Plan and Process Flow Diagram



Note: Refrigeration Skid includes Evaporative Cooler Skid

REVISIONS					KERN OIL & REFINING CO. BAKERSFIELD, CALIFORNIA		
REV	DESCRIPTION	DATE	APPROVED		LPG Recovery Unit Block Flow Diagram		
0	BFD Development	1/9/2013	DAM		SIZE 8.5" X 11"	DWG NO	REV 0
					SCALE N/A	SHEET	1 OF 1

By: D. McCoy



B

L.R.U. PROJECT LAYOUT

DATE: 02/04/13 BY: HRP SCALE: 1/32"=1'-0"

ATTACHMENT III Gas Analysis

Refinery Fuel Gas

Stream Name **REFINERY FUEL GAS**

Stream Number **Design Feed Basis**

Sample Series Number
 SAMPLED, DATE Mo/Dy/Yr
 SAMPLED, TIME Hr:Min Mr
 ANALYZED, DATE Mo/Dy/Yr
 ANALYZED, TIME Hr:Min Mr

Requested By	Name	
Sampled By	Name	
Sample ID	Number or Text	
State or EPA Certification#		
Lab Contact	Name	
Approval	Y or N	

COMPOSITION		% by Moles	
Constituent Name	Molecular Formula		Feed
Molecular Hydrogen	H ₂		48.5021
Methane	CH ₄		18.5363
Ethane	C ₂ H ₆		5.0257
Ethylene	C ₂ H ₄		0.0016
Propane	C ₃ H ₈		8.6682
Propylene	C ₃ H ₆		0.0077
Propadiene	C ₃ H ₄		0.0000
Methyl Acetylene	C ₃ H ₄		0.0210
Cyclopropane	C ₃ H ₆		0.0000
n-Butane	n-C ₄ H ₁₀		6.1344
i-Butane	i-C ₄ H ₁₀		3.1768
1-Butylene	1-C ₄ H ₈		0.0139
Trans-2-Butylene	2-t-C ₄ H ₈		0.0069
Cis-2-Butylene	2-c-C ₄ H ₈		0.0238
IsoButylene	i-C ₄ H ₈		0.0245
1,3-Butadiene	1,3-C ₄ H ₆		0.0074
n-Pentane	n-C ₅ H ₁₂		1.5766
i-Pentane	i-C ₅ H ₁₂		2.7219
C6+	-		0.2314
Molecular Oxygen	O ₂		0.9496
Molecular Nitrogen	N ₂		3.9968
Carbon Monoxide	CO		0.0563
Carbon Dioxide	CO ₂		0.3168
Hydrogen Sulfide	H ₂ S		0.0002
Ammonia	NH ₃		#DIV/0!
Total	-		99.7851

PROPERTIES			Feed
Mixture Molecular Weight	M _{w, M}		19.2916
Standard Compressibility Factor (z _M)	-		0.9971
Ideal Gas Standard Specific Gravity	-		0.6745
Real Gas Standard Specific Gravity	-		0.6763
High Heating Value (HHV, Ideal)	BTU/SCF		1141.39
Low Heating Value (LHV, Ideal)	BTU/SCF		1036.80
Fuel Oil Equivalent (FOE)	mBBL/SCF		0.1873
Equivalent Liquid (Eq. Liq.)	US Gal/SCF		3.4481

CHONS		% by Moles	Feed
Carbon (C)		12.0107	20.9466
Hydrogen (H)		1.00794	76.9978
Oxygen (O)		15.9994	0.4997
Nitrogen (N)		14.0067	1.5558
Sulfur (S)		32.065	0.0000
Carbon Content	(kg of C/kg of Total)		0.7123

ATTACHMENT IV Fugitive Emissions

Fugitive Emissions Using Correlation Equation Emission Factors

California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities

Table IV-3a: CAPCOA -Revised 1995 EPA Protocol Refinery Correlation Equations for Refineries and Marketing Terminals

Table values include 100% in correlation range, no default zeroes (screening value does not equal zero), and screening value ranges

Equipment Type	Service	Component Count	% Default Zeros	%Pegged (>10,000)	% in Correlation Range	Correlation Screening value (ppm)	Default Zero Emissions (lb/day)	Pegged Emissions (lb/day)	Correlation Emissions (lb/day)	VOC emissions (lb/day)
Valves	All	829	0.0%	0.0%	100.0%	200	0.000	0.000	5.212	5.21
Pump Seals	All	25	0.0%	0.0%	100.0%	500	0.000	0.000	3.201	3.20
Others	All	17	0.0%	0.0%	100.0%	500	0.000	0.000	0.422	0.42
Connectors	All	2,984	0.0%	0.0%	100.0%	200	0.000	0.000	11.929	11.93
Flanges	All	685	0.0%	0.0%	100.0%	200	0.000	0.000	6.916	6.92
Open-ended lines	All	0	0.0%	0.0%	100.0%	500	0.000	0.000	0.000	0.00

Total VOC Emissions (lb/day) = 27.7
Total VOC Emissions (lb/yr) = 10,103

Factors Used in Calculations - For Reference

Equipment Type	Service	Default Zero Factor (kg/hr)	Pegged Factor (kg/hr)	Correlation Equation (kg/hr)
Valves	All	7.800E-06	6.400E-02	2.27E-06(SV)^0.747
Pump Seals	All	1.900E-05	8.900E-02	5.07E-05(SV)^0.622
Others	All	4.000E-06	8.200E-02	8.69E-06(SV)^0.642
Connectors	All	7.500E-06	3.000E-02	1.53E-06(SV)^0.736
Flanges	All	3.100E-07	9.500E-02	4.53E-06(SV)^0.706
Open-ended lines	All	2.000E-06	3.300E-02	1.90E-06(SV)^0.724

Kern Oil & Refining Co.

Solvent Unit

Pre-Project Emissions (Solvent Unit)

Fugitive Emissions Using Screening Emission Factors

California Implementation Guidelines for Estimating Mass Emissions
of Fugitive Hydrocarbon Leaks at Petroleum Facilities

Table IV-2a. 1995 EPA Protocol Refinery
Screening Value Range Emission Factors

Weight percentage of VOC in the total organic compounds in gas? 100 %
 Weight percentage of VOC in the total organic compounds in oil? 100 %

Equipment Type	Service	Component Count	Total allowable leaking components	Screening Value EF: TOC		VOC emissions (lb/day)
				< 10,000 ppmv (lb/day/source)	> 10,000 ppmv (lb/day/source)	
Valves	Gas	55	2.00	3.175E-02	1.389E+01	29.47
	Light Liquid	250	0.00	8.995E-02	4.508E+00	22.49
	Heavy Liquid	0	0.00	1.217E-02	1.217E-02	0.00
Pump Seals	Light Liquid	9	2.00	6.349E-01	2.312E+01	50.69
	Heavy Liquid	0	0.00	7.143E-01	2.056E+01	0.00
Compressor Seals	Gas	0	0.00	4.730E+00	8.508E+01	0.00
	Hydrogen	0	0.00	a	a	0.00
Pressure Relief Valves	All (w/o rupture disk)	8	1.00	2.365E+00	8.947E+01	106.03
	All (w/ vapor recovery)	0		b	b	
Connectors	All (flanges)	94	1.00	3.175E-03	1.984E+00	2.28
	All (THD)	2,818	15.00	3.175E-03	1.984E+00	38.66
Open-ended Lines	All	0	0.00	7.937E-02	1.032E+00	0.00

Total VOC Emissions = 249.6 lb/day
45.6 ton/yr

Kern Oil & Refining Co.
Solvent Unit
Post-Project Emissions (Solvent Unit)

Fugitive Emissions Using Screening Emission Factors

California Implementation Guidelines for Estimating Mass Emissions
of Fugitive Hydrocarbon Leaks at Petroleum Facilities
Table IV-2a. 1995 EPA Protocol Refinery
Screening Value Range Emission Factors

Weight percentage of VOC in the total organic compounds in gas? 100 %
Weight percentage of VOC in the total organic compounds in oil? 100 %

Equipment Type	Service	Component Count	Total allowable leaking components	Screening Value EF - TOC		VOC emissions (lb/day)
				< 10,000 ppmv (lb/day/source)	≥ 10,000 ppmv (lb/day/source)	
Valves	Gas	36	1.00	3.175E-02	1.389E+01	15.01
	Light Liquid	62	0.00	8.995E-02	4.508E+00	5.58
	Heavy Liquid	0	0.00	1.217E-02	1.217E-02	0.00
Pump Seals	Light Liquid	9	1.00	6.349E-01	2.312E+01	28.20
	Heavy Liquid	0	0.00	7.143E-01	2.056E+01	0.00
Compressor Seals	Gas	0	0.00	4.730E+00	8.508E+01	0.00
	Hydrogen	0	0.00	a	a	
Pressure Relief Valves	All (w/o rupture disk)	0	0.00	2.365E+00	8.947E+01	0.00
	All (w/ vapor recovery)	0		b	b	
Connectors	All (flanges+THD)	435	1.00	3.175E-03	1.984E+00	3.36
			0.00	3.175E-03	1.984E+00	0.00
Open-ended Lines	All	0	0.00	7.937E-02	1.032E+00	0.00

Total VOC Emissions = 52.1 lb/day
9.5 ton/yr

ATTACHMENT V Emissions Profiles

Permit #: S-37-38-10	Last Updated
Facility: KERN OIL & REFINING CO.	05/19/2013 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	4818.0	16556.0	526.0	1226.0	53269.0
Daily Emis. Limit (lb/Day)	13.2	45.4	1.4	3.4	145.9
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	-18021.0
Q2:	0.0	0.0	0.0	0.0	-18022.0
Q3:	0.0	0.0	0.0	0.0	-18022.0
Q4:	0.0	0.0	0.0	0.0	-18022.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Permit #: S-37-149-0	Last Updated
Facility: KERN OIL & REFINING CO.	05/19/2013 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	10103.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	27.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	2525.0
Q2:	0.0	0.0	0.0	0.0	2526.0
Q3:	0.0	0.0	0.0	0.0	2526.0
Q4:	0.0	0.0	0.0	0.0	2526.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:					394.0
Q2:					394.0
Q3:					394.0
Q4:					394.0

ATTACHMENT VI HAE Emissions Calculations

S-37
2010 HAE

Fugitive Emissions Using Screening Emission Factors

California Implementation Guidelines for Estimating Mass Emissions
of Fugitive Hydrocarbon Leaks at Petroleum Facilities

Table IV-2c. ~~Oil and Gas Production~~ *Refinery*
Screening Value Ranges Emission Factors

Percentage of components with $\geq 10,000$ ppmv leaks allowed? 0 %
 Weight percentage of VOC in the total organic compounds in gas (neglect non-organics)? 100 %
 Weight percentage of VOC in the total organic compounds in oil (neglect non-organics)? 100 %

Equipment Type	Service	Component Count	Total allowable leaking components	Screening Value EF - TOC		VOC emissions (lb/day)
				< 10,000 ppmv (lb/day/source)	$\geq 10,000$ ppmv (lb/day/source)	
Valves	Gas/Light Liquid Light Crude Oil	77	1	3.175E-02	1.389E+01	16.30
		225	0	8.995E-02	4.508E+00	21.34
Pump Seals	Gas/Light Liquid	9	0	6.349E-01	2.312E+01	11.34
Pressure Relief	Gas/Light Liquid	8	0	2.365E+00	8.947E+01	18.92
						0.00
Connectors	Flanges THD	94	0	3.175E-03	1.984E+00	0.30
		2,818	0	3.175E-03	1.984E+00	13.90
						0.00

* Emission factor not available. All components from equipment type and service will be assessed as < 10,000 ppmv

Total VOC Emissions = 82.1 lb/day

S-37
2009 ~~2010~~ HAE

Fugitive Emissions Using Screening Emission Factors

California Implementation Guidelines for Estimating Mass Emissions
of Fugitive Hydrocarbon Leaks at Petroleum Facilities

Table IV-2a ~~Oil and Gas Production~~ *Refinery*
Screening Value Ranges Emission Factors

Percentage of components with ≥ 10,000 ppmv leaks allowed? 0 %
 Weight percentage of VOC in the total organic compounds in gas (neglect non-organics)? 100 %
 Weight percentage of VOC in the total organic compounds in oil (neglect non-organics)? 100 %

Equipment Type	Service	Component Count	Total allowable leaking components	Screening Value EF - TOC		VOC emissions (lb/day)
				< 10,000 ppmv (lb/day/source)	≥ 10,000 ppmv (lb/day/source)	
Valves	Gas/Light Liquid	77	0	3.175E-02	1.389E+01	2.44
	Light Crude Oil	225	1	8.995E-02	4.508E+00	24.66
	Heavy Crude Oil	0	0			0.00
Pump Seals	Gas/Light Liquid	9	0.25 0	6.349E-01	2.312E+01	11.34
	Light Crude Oil	0	0			0.00
	Heavy Crude Oil	0	0			N/A
Pressure Relief	Gas/Light Liquid	8	0	2.365E+00	8.947E+01	18.92
						0.00
						0.00
Connectors	Flanges	94	0	3.175E-03	1.984E+00	0.30
	THD	2,818	2.5 0	3.175E-03	1.984E+00	13.90
						0.00

* Emission factor not available. All components from equipment type and service will be assessed as < 10,000 ppmv

Total VOC Emissions = 71.6 lb/day

Kern Oil & Refining Co.

Fugitive Component Testing Data 2008 through 2012

Year	Quarter	Component Typ	Service	Leak Rate	Critical	>10,000
2008	1	V	LL	4 DPM		X
2008	3	V	LL	30 dpm		X
2008	3	V	LL	50001		X
2008	3	V	LL	40000		X
2008	3	C	LL	50001		X
2008	3	F	LL	10010		X
2008	4	V	LL	50001		X
2008	4	V	LL	10182		X
2008	4	O	LL	10320		X
2009	1	C	LL	15000		X
2009	1	O	G	27380		X
2009	1	O	LL	10120		X
2009	1	O	LL	20350		X
2009	1	C	LL	10120		X
2009	1	O	G	50001		X
2009	1	O	G	50001		X
2009	1	P	LL	50001		X
2009	1	C	LL	5 DPM		X
2009	3	V	LL	5 DPM		X
2009	4	V	LL	25380		X
2009	4	O	LL	40709		X
2009	4	C	LL	49522		X
2009	4	V	LL	27350		X
2009	4	V	LL	30 DPM		X
2010	1	C	LL	25700		X
2010	1	O	LL	21415		X
2010	1	V	LL	25432		X
2010	3	P	LL	50001		X
2010	3	C	G	50001	X	X
2010	3	V	G	10210	X	X
2010	3	C	LL	40750		X
2010	3	O	LL	10024		X
2010	3	C	LL	50001		X
2010	3	C	LL	50001		X
2011	1	C	LL	15285		X
2011	1	C	LL	15340		X
2011	1	V	G	15514		X
2011	1	C	LL	34000		X
2011	3	C	LL	10150		X
2011	2	P	LL	50001		X
2011	2	C	LL	68000		X
2011	2	O	LL	18900		X
2012	1	P	LL	13500		X
2012	1	C	LL	10200		X
2012	2	O	LL	40000		X
2012		C	LL	50000		X
2012		C	G	50000		X
2012		C	LL	8 dpm		X
2012		O	LL	14000		X
2012		C	G	50000		X

ATTACHMENT VII BACT Guidelines

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 7.2.2*

Last Update 11/27/2008

Petroleum Refining - Valves & Connectors

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Leak defined as a reading of methane in excess of 100 ppmv above background when measure per EPA Method 21 and an Inspection and Maintenance Program pursuant to District Rule 4455		

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 7.2.3*

Last Update 11/27/2006

Petroleum Refining - Pump and Compressor Seals

Pollutant	Achieved In Practice or contained In the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	Leak defined as a reading of methane in excess of 500 ppmv above background when measure per EPA Method 21 and an Inspection and Maintenance Program pursuant to District Rule 4455		

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

ATTACHMENT VIII BACT Analysis

Top-Down Analysis for VOC Emissions

BACT Guideline 7.2.2 Petroleum Refining – Valves and Connectors
BACT Guideline 7.2.3 Petroleum Refining – Pumps and Compressor Seals

Step 1 - Identify All Possible Control Technologies

Leak defined as a reading of methane, in excess of 100 ppmv for valves and connectors (500 ppmv for pumps and compressor seals) above background when measured per EPA Method 21 and an Inspection and Maintenance Program pursuant to District Rule 4455.

Step 2 - Eliminate Technologically Infeasible Options

There is no technologically infeasible option.

Step 3 - Rank Remaining Control Technologies by Control Effectiveness

Leak defined as a reading of methane, in excess of 100 ppmv for valves and connectors (500 ppmv for pumps and compressor seals) above background when measured per EPA Method 21 and an Inspection and Maintenance Program pursuant to District Rule 4455.

Step 4 - Cost Effectiveness Analysis

Since the applicant has chosen the most effective control technology listed in step 3 as a technologically feasible option; a cost effectiveness analysis is not required.

Step 5 - Select BACT

For the new fugitive emissions components - Leak defined as a reading of methane, in excess of 100 ppmv for valves and connectors (500 ppmv for pumps and compressor seals) above background when measured per EPA Method 21 and an Inspection and Maintenance Program pursuant to District Rule 4455.

ATTACHMENT IX
Statewide and Title V Compliance Certification

**San Joaquin Valley
Unified Air Pollution Control District**

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

- SIGNIFICANT PERMIT MODIFICATION ADMINISTRATIVE
 MINOR PERMIT MODIFICATION AMENDMENT

COMPANY NAME: KERN OIL & REFINING CO.	FACILITY ID: S- 37
1. Type of Organization: <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility	
2. Owner's Name: KERN OIL & REFINING CO.	
3. Agent to the Owner: N/A	

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial all circles for confirmation):

- Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).
- Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.
- Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.
- Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

Bruce Cogswell
Signature of Responsible Official

2/14/13
Date

Bruce Cogswell

Name of Responsible Official (please print)

VP Manufacturing

Title of Responsible Official (please print)



Kern Oil & Refining Co.

7724 E. PANAMA LANE
BAKERSFIELD, CALIFORNIA 93307-9210
(661) 845-0761 FAX (661) 845-0330

February 27, 2013

Mr. Leonard Scandura
SJVAPCD
34946 Flyover Court
Bakersfield, CA 93308

**Subject: Kern Oil & Refining Co. – Compliance Certification
Project Application for Modification of Solvent Unit & Addition of LRU
APCD Project Number 1130397**

Dear Mr. Scandura:

District Rule 2201, Section 4.15.2, requires that an owner or operator proposing a Federal Major Modification certify that all major stationary sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California are either in compliance or on a schedule for compliance with all applicable emission limitations and standards. This letter certifies compliance for Kern Oil & Refining Co.

Kern Oil & Refining Co. (Kern) is the sole owner and operator of a petroleum refining facility, ID S-37, located at 7724 E. Panama Lane in Bakersfield, CA. Kern has Notices of Violation outstanding; however all issues associated with these are currently being addressed.

This certification is made on information and belief and is based upon a review of Kern's major source facility by employees who have responsibility for compliance and environmental requirements. This certification is as of the date of its execution.

If you have any questions, please call Melinda Hicks, EHS Manager, at (661) 845-0761.

Sincerely,

Bruce Cogswell
VP Manufacturing

cc: Melinda Hicks
Joe Selgrath

ATTACHMENT X
HRA

2nd REVISED MEMORANDUM
San Joaquin Valley Air Pollution Control District
Risk Management Review

To: Richard Edgehill – Permit Services
 From: Ester Davila – Technical Services
 Date: May 09, 2013
 Facility Name: Kern Oil & Refining Company
 Location: 7724 E. Panama Lane, Bakersfield
 Application #(s): S-37-38-10 & 149-0
 Project #: S-1130397

A. RMR SUMMARY

RMR Summary				
Categories	Solvent Plant (Unit 38-10)	LPG Recovery Unit (Unit 149-0)	Project Totals	Facility Totals
Prioritization Score	N/A*	0.04	0.04	>1.0
Acute Hazard Index	N/A	0.00115	0.00017	0.83
Chronic Hazard Index	N/A	0.00023	0.00004	0.26
Maximum Individual Cancer Risk	N/A	0.16E-6	0.16E-06	9.99E-06 [†]
T-BACT Required?	N/A	No		
Special Permit Conditions?	N/A	Yes		

*This unit had a reduction in emissions and will not contribute to the projects risk.

[†]The Maximum Individual Cancer Risk has reached its facilitywide total limit of 9.99E-06. Further projects will not be considered without prior review of entire facility.

Proposed Permit Conditions

To ensure that human health risks will not exceed District allowable levels; the following permit conditions must be included for:

Unit # 149-0

1. VOC emissions shall not exceed 10,103 pounds per year.

B. RMR REPORT

I. Project Description

Technical Services received a request on May 09, 2013, to perform a revised Risk Management Review for the modification of a solvent plant (S-37-38-10) including the deletion of some equipment and the installation of a new LPG recovery unit (S-37-149-0), to reduce the VOC emissions rates from 195.7 pounds per day to 27 pounds per day and 71,000 pounds per year to 10,100 pounds per year. Public Notice was also triggered for VOC; however there are no State or Federal Ambient Air Quality Standards for VOC, consequently an AAQA was not required.

II. Analysis

Technical Services performed a prioritization using the District's HEARTs database. Since the facilitywide total prioritization scores were greater than one, a refined health risk assessment was required and performed. Toxic emissions were calculated using a refinery fuel gas sample analysis and the VOC emission rates provided by the engineer for unit S-37-149-0. Modifications to unit S-37-38-10 resulted in a decrease in emissions. Unit S-37-38-10 will not contribute to the risk for this project. AERMOD was used, with area source parameters outlined below, and the 5-year concatenated meteorological data from Bakersfield to determine maximum dispersion factors at the nearest residential and business receptors. These dispersion factors were input into the HARP model to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Analysis Parameters Unit 149-0			
Source Type	Area	Closest Receptor (m)	286
Release Height (m)	0.9	Closest Receptor Type	Business
Size of "x" Width (m)	6	Project Location Type	Rural
Size of "y" Width (m)	6		

III. Conclusion

The acute and chronic indices are below 1.0; and the maximum individual cancer risk associated with the project is $0.16E-06$, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved without Toxics Best Available Control Technology (T-BACT).

Note:

Although there is a reduction in VOCs from the solvent plant (unit S-37-38), the project cannot receive credit for this reduction, as unit S-37-38 has not been evaluated previously for risk.

The facility has reached the $9.99E-6$ threshold and no further projects will be allowed without prior review of existing facility projects and their associated risks.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

Attachments:

- A. RMR Request & Additional Information
- B. Emissions Spreadsheet based on Refinery Fuel Gas Analysis
- C. Emissions Summary & Prioritization
- D. HARP Reports
- E. Facility summary

ATTACHMENT XI
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-37-38-10

LEGAL OWNER OR OPERATOR: KERN OIL & REFINING CO.
MAILING ADDRESS: 7724 E PANAMA LANE
BAKERSFIELD, CA 93307-9210

LOCATION: PANAMA LN & WEEDPATCH HWY
BAKERSFIELD, CA 93307-9210

SECTION: 25 TOWNSHIP: 30S RANGE: 28E

EQUIPMENT DESCRIPTION:

MODIFICATION OF SOLVENT UNIT INCLUDING: NAPHTHA FRACTIONATOR (V-1), LIGHT SOLVENT FRACTIONATOR (V-3), V M & P NAPHTHA FRACTIONATOR (V-5), MINERAL SPIRITS FRACTIONATOR (V-7), 4 REFLUX DRUMS (V-2, V-4, V-6 AND V-8) AND 3,750,000 BTU/HR GAS FIRED FIRE TUBE HEATER (H-1): DELETE NAPHTHA FRACTIONATOR (V-1), LIGHT SOLVENT FRACTIONATOR (V-3), V M & P NAPHTHA FRACTIONATOR (V-5), MINERAL SPIRITS FRACTIONATOR, V-2, V-4, V-6 REFLUX DRUMS FOR REUSE IN LPG RECOVERY UNIT S-37-149-0, DELETE RULE 4455 CONDITIONS (INCLUDED ON '0-0 PERMIT), CHANGE PERMIT NAME FROM SOLVENT UNIT TO SPLITTER UNIT

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Heater shall be fired on purchased natural gas or refinery fuel gas only. [District NSR Rule] Federally Enforceable Through Title V Permit
4. Reflux drum V-8 shall vent only to vapor control system on permit S-37-8. [District NSR Rule] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services

9-37-38-10: May 30 2013 10:24AM - EDGHEILR : Joint Inspection NOT Required

5. There shall be no pressure relief valves or vents designed to emit air contaminants to the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
6. There shall be no leaks of 10,000 ppmv or greater of any pressure relief devices installed as part of the unit. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Sampling facilities for source testing shall be provided in accordance with the provisions of Rule 1081 (Source Sampling). [District Rule 1081] Federally Enforceable Through Title V Permit
8. Heater shall be equipped with fuel flowrate indicator. [District NSR Rule] Federally Enforceable Through Title V Permit
9. If splitter unit plant produces odoriferous wastewater, such wastewater shall not be transported in open system or disposed of in open air site(s). [District NSR Rule] Federally Enforceable Through Title V Permit
10. This permit to operate does not authorize steam production increase over S-37-6 permit limit. [District NSR Rule] Federally Enforceable Through Title V Permit
11. Fuel gas sulfur content (as H₂S) shall not exceed 0.10 gr/ dscf (160 ppmv) over a three hour rolling average and shall be continuously monitored and recorded. [40 CFR 60, Subpart J, 60.104] Federally Enforceable Through Title V Permit
12. Heater shall operate with no emissions in excess of 5% opacity or source testing shall be required to document emission rates. [District NSR Rule] Federally Enforceable Through Title V Permit
13. Heater shall not be fired at greater than 3.75 MMBtu/hr heat input rate. [District NSR Rule] Federally Enforceable Through Title V Permit
14. Emissions from fugitive emissions components shall not exceed 52.1 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit
15. Emission rates shall not exceed any of the following limits: PM₁₀: 0.06 lb/hr, SO_x (as SO₂): 1.89 lb/hr, NO_x (as NO₂): 0.55 lb/hr, VOC: 3.91 lb/hr or CO: 0.14 lb/hr. [District NSR Rule] Federally Enforceable Through Title V Permit
16. Particulate matter emissions shall not exceed 0.1 grain/dscf. Emissions of combustion contaminants shall not exceed 0.1 grain per cubic foot of gas calculated to 12% CO₂ at dry standard conditions. Emissions of combustion contaminants shall not exceed ten (10) pounds per hour. [District Rules 4201, 3.1 and 4301, 5.1 and 5.2.3] Federally Enforceable Through Title V Permit
17. Emissions of sulfur compounds from this unit shall not exceed 200 lb per hour, calculated as SO₂. [District Rule 2520, 9.3.2; District Rule 4301, 5.2.1] Federally Enforceable Through Title V Permit
18. The concentration of sulfur compounds in the exhaust from this unit shall not exceed 0.2% by volume as measured on a dry basis over a 15 minute period. [District Rule 2520, 9.3.2; Kern County Rule 407; District Rule 4801] Federally Enforceable Through Title V Permit
19. Compliance with sulfur compound emission limits may be demonstrated by firing this unit either on PUC or FERC regulated natural gas or refinery gas with a sulfur content of no more than 0.1 grain-H₂S/dscf (160 ppmv) according to the continuous H₂S monitor installed downstream of the sulfur recovery unit. [District Rules 4301, 4801 and 2520, 9.3.2] Federally Enforceable Through Title V Permit
20. Operator shall report all rolling 3-hour periods during which the average concentration of H₂S as measured by the H₂S continuous monitoring system exceeds 0.10 gr/dscf (160 ppmv). [40 CFR Part 60, Subpart J, 60.105(e)(3)(ii)] Federally Enforceable Through Title V Permit
21. Operator shall determine compliance with the H₂S standard using EPA Method 11. [40 CFR Part 60, Subpart J, 60.106(e)] Federally Enforceable Through Title V Permit
22. The permittee shall comply with all applicable notification, recordkeeping and monitoring requirements of Rule 4001. [District Rule 4001] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

23. Permittee shall maintain accurate component count and emissions calculated using the 1995 EPA Protocol Refinery Screening Value Range Emissions Factors, from California Implementation Guidelines for Estimating Emissions of Fugitive Hydrocarbon Leaks at Marketing Terminals, Table IV-2a, February 1999. [District Rule 2201] Federally Enforceable Through Title V Permit
24. The permittee shall keep accurate records of sulfur content of refinery fuel gas for a period of five years, and shall make such records available for District inspection upon request. [District NSR Rule] Federally Enforceable Through Title V Permit
25. Operator shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-37-149-0

LEGAL OWNER OR OPERATOR: KERN OIL & REFINING CO.
MAILING ADDRESS: 7724 E PANAMA LANE
BAKERSFIELD, CA 93307-9210

LOCATION: PANAMA LN & WEEDPATCH HWY
BAKERSFIELD, CA 93307-9210

EQUIPMENT DESCRIPTION:

4 MMSCF/DAY LPG RECOVERY UNIT INCLUDING CHARGE AND REFRIGERATION COMPRESSORS, 1ST AND 2ND STAGE MEMBRANES, SOLID PHASE DRYERS A AND B (MOLECULAR SIEVE), EVAPORATIVE COOLER, DEETHANIZER COLUMN (V-3) DEETHANIZER REFLUX DRUM (V-4) DEPROPANIZER COLUMN (V-5) DEPROPANIZER REFLUX DRUM (V-6), DEBUTANIZER COLUMN (V-1), AND DEBUTANIZER REFLUX DRUM (V-2)

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2010] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services

6-37-149-0: May 30 2013 3:28PM - EDGEHILL John Inspection NOT Required

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
7. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
8. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
9. LPG and pentane liquid products shall be sent to existing storage facilities. [District Rule 2201]
10. Total fugitive emissions rate from valves, pumps, flanges, others, and connectors from components in this permit unit shall be periodically calculated as described below using the California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities (February 1999), Table IV-3a:CAPCOA-Revised 1995 EPA Correlation Equations and Factors for Refineries and Marketing Terminals (as described in the following conditions) and shall not exceed 27.7 lb/day. [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit
11. A leak shall be defined as a reading of methane, in excess of 100 ppmv for valves and connectors and in excess of 500 ppmv for pump and compressor seals above background when measured per EPA Method 21 and an Inspection and Maintenance Program pursuant to District Rule 4455. [District Rule 2201] Federally Enforceable Through Title V Permit
12. Permit holder shall maintain accurate records of component counts and resultant emissions according to CAPCOA's "California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities," Table IV-3a (Feb 1999), CAPCOA-Revised 1995 EPA Correlation Equations and Factors for Refineries and Marketing Terminals. Permit holder shall update such records when new components are installed. Components shall be screened and leak rate shall be measured at least once each quarter. If compliance with the daily emission limit is shown during each of five (5) consecutive quarterly inspections, the inspection frequency may be changed from quarterly to annual. If any annual inspection shows non-compliance with the daily emission limit, then quarterly inspections shall be resumed. [District Rule 2201] Federally Enforceable Through Title V Permit
13. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit
14. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 394 lb, 2nd quarter - 394 lb, 3rd quarter - 394 lb, and fourth quarter - 394 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 4/21/11) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
15. ERC Certificate Number S-3944-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

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